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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/888,511	06/26/2001	Paul K. Mazaika	07447.0058-00000	1121

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FINNEGAN, HENDERSON, FARABOW, GARRETT &
DUNNER LLP
1300 I STREET, NW
WASHINGTON, DC 20006

EXAMINER

HESS, DANIEL A

ART UNIT	PAPER NUMBER
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2876

DATE MAILED: 02/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/888,511

Applicant(s)

MAZAIKA, PAUL K.

Examiner

Daniel A Hess

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Receipt is acknowledged of amendment on 12/20/2002, which has been placed in the file of record.

Remarks

The 'Response to Amendments' section below, after the rejection, should be particularly noted.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tow (US 5,315,098) in view of Hecht et al. (US 6,000,613) and Sasanuma (EP 0 590 884 B1).

Tow shows a method of encoding data in an image using 'circularly asymmetric halftone dot patterns' (abstract, lines 2-3). Tow's encoding scheme is in the realm of hardcopy documents (column 1, lines 52-55). The dot pattern is modulated in terms of angular orientation (column 2, lines 43-50). The dot pattern (1-25) is rendered into a tiled cell block 61, producing a

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hard copy rendering of the image with digital data encoded thereon (figures 2-5; column 3, line 48 to column 4, line 48). Also, the color, size, and pixel density must be predetermined, i.e. they must have particular values selected before a cell can be created / rendered.

Tow fails to show that the code is invisible, while at the same time, employing visible ink.

Hecht et al. (US 6,000,613) shows (column 1, lines 63-65) glyphs made using inks that are virtually invisible under normal lighting conditions. Also, 'small size' (column 1, line 67) can help hide the glyphs.

In view of Hecht's teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the old and well-known glyph construction using hard – to – see inks and small size as taught by Hecht into the teachings of Tow because this allows information to be hidden in documents, fighting forgery and foiling those who might attempt to pass fraudulent documents.

Tow as modified by Hecht fails to show the use of visible ink to achieve this invisible code. Instead he refers to hard-to-see inks.

Sasanuma shows (column 2, lines 1-10) that a yellow ink, which is visible under certain circumstances, can be rendered 'unnoticeable.'

In view of Sasanuma, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the old and well-known yellow ink for security markings on white paper because this makes the markings hard to detect since the color matching is so close.

3. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tow as modified by Hecht and Sasanuma as applied to claim 1 above, and in further view of Mowry, Jr. (US 6,250,007) and Bloomberg et al. (US 6,076,738). The teachings of Tow as modified by Hecht have been discussed above.

Re claim 3: Tow as modified by Hecht shows tiled cell blocks of a predetermined size.

Tow as modified by Hecht fails to show that the size is a 12x12 matrix.

Mowry shows (column 6, lines 29-46) that dots are 6-12 pixels as compared to an overall square matrix of around 112 pixels. If a dot matrix is 9 pixels square then a matrix composed of such pixels will be 12x12.

In view of Mowry's teachings, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the old and well-known 12x12 matrix as taught by Mowry into the teachings of Tow as modified by Hecht because as this permits spacing between glyphs, which has advantages such as making the matrix less dense. A less dense matrix, as Bloomberg shows (column 10, lines 43-50) avoids some problems of blurring, which can destroy the information content of glyphs.

Re claim 4: Tow as modified by Hecht and Sasanuma shows glyphs of some predetermined density.

Tow as modified by Hecht does not show that the predetermined pixel density is 2%.

Mowry shows low density glyphs (see figures 3 and 4). On visual inspection, the filled area in these glyphs may be around 2%. In addition, Mowry (column 6, lines 41-46) shows that a single dot may be 1/3% to around 1.2% of the total matrix so several dots as shown in figures 3 and 4 could correspond to around 2% of the matrix area.

In view of Mowry, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the old and well-known pixel density on the order of 2% as taught by Mowry into the teachings of Tow as modified by Hecht and Sasanuma because as Bloomberg shows (column 10, lines 43-50) lower density avoids some problems of blurring, which can destroy the information content of glyphs.

Response to Amendments

The essential element of the applicant's argument appears to be the applicant's claim that the prior art "does not teach the use of visible colors to produce invisible images" (December, 2002 amendment, page 5, line 9).

However, Hecht refers to colors inks that are 'virtually invisible' (column 1, line 64). Sasanuma (column 2, lines 4-10) similarly uses the term 'unnoticeable' to refer to yellow on a white background.

In the instant case, (claim 2) the predetermined "visible" color is yellow. Clearly not just any color will do, but one that is so difficult to see as to be virtually invisible under certain circumstances. In fact, the very color that the applicant refers to as "visible" is actually one that against a white background is actually not very visible at all! Sasanuma (column 2, lines 4-10) does a very good job of clarifying that a visible color, and yellow in particular, can be employed in such a way as to render an invisible image.

What is actually essential to the reject is the recognition that those 'virtually invisible inks' Hecht refers to can actually be of the visible type Sasanuma teaches, i.e. rendered hard to see by choice of color and background. Indeed when Hecht's use of 'virtually invisible inks' is

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combined with Sasanuma's 'yellow... unnoticeable on white paper,' we do indeed have the claimed "use of visible colors to produce invisible images" in a circularly asymmetric dot pattern. The terms 'unnoticeable' (Sasanuma's term) has the same meaning as 'invisible' (Hecht's term and applicant's term). Note also that Sasanuma does not make a qualification that the yellow ink must be overly sparse to be unnoticeable.

Regarding the applicant's argument that 'the average density ... in Tow is too high to render the glyphs invisible' (page 4) – the examiner does not agree. In Tow (column 4, lines 5-15) the crosshatched pixels are not filled in, meaning that the density of Tow is less than it appears and is not especially high. Also, note that in Tow (column 3, lines 18-20) it should be understood that the illustrated dimensions are just exemplary and some minor variation in dimensions of the dot patterns and cells is within the scope of Tow. In general, the halftone density of Tow could be roughly of the same order of magnitude as in the instant case. Since invisibility is not an 'either/or' situation but one marked many gradations, one would expect that if there is invisibility in the instant case, Tow employing the hard-to-see yellow of Sasanuma would also fall somewhere along an invisibility gradient, probably not far from that of the instant case. If there is a specific threshold of invisibility, the applicant has not defined it, and there is much variability among individual vision. This examiner, having nearly failed his most recent eye exam at the DMV, can attest to that.

Conclusion

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4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
5. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel A Hess whose telephone number is (703) 305-3841. The examiner can normally be reached on 8:00 AM - 5:00 PM M-F.
7. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G Lee can be reached on (703) 305-3503. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.
8. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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DH

February 1, 2003

Daniel A Hess
Examiner
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A handwritten signature in black ink, appearing to be 'KDF' with a long vertical stroke extending from the 'F'.

KARL D. FRECH
PRIMARY EXAMINER